

Work Order ID 131685

Tuesday, April 21, 2015 1:45:59 PM

131685

Page 1

Item ID: D3649-041 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Tunnel Bottom Panel Assy
 Start Date: 4/20/15 Start Qty: 2.00 ***2*** **6**
 Required Date: 4/20/15 Req'd Qty: 2.00 ***2***
 Reference: Cust Item ID:
 Customer:

Approvals: Process Plan: CL Date: APR 22 2015 Tooling: _____ Date: _____
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____
 Run Start ***NR1***
 Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D3649	Rev B

100 FLOW WATER JET 0.00
100
 Waterjet 0.00
 FLOW CNC Waterjet Memo
 1-Cut as per Dwg D3649 Dwg Rev: B Prog Rev: B 2-
 Deburr if necessary
304.018 6 0 Jm 15-4-30

110 QC2- Inspect parts off machine FAI/FAIB 0.00
110
 QC 0.00
 Quality Control Memo
6 0 Jm 15-4-30

120 QC8- Inspect parts - second check 0.00
120
 QC 0.00
 Quality Control Memo
6 0 Jm 15-4-30
 DAS
 38
 9-89
 MAY 01 2015

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

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Picklist Print

Tuesday, April 21, 2015 1:45:58 PM

Page 1

Work Order ID: 131685

131685

Parent Item: D3649-041

D3649-041

Parent Item Name: Tunnel Bottom Panel Assy

Start Date: 4/20/15

Required Date: 4/20/15

Start Qty: 2.00

Required Qty: 2.00

Comments: IPP Rev:A New Issue 07-09-26 EC verified by: DD
IPP Rev:B ECN 1113P 08-01-22 DD verified by: EC
IPP Rev:C Ecn1162 08-04-02 DD verified by: EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
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M304S26GA

Purchased

No

150

sf

75.6567

6.069

~~18~~

(40)

Jm 15-4-30

M304S26GA

304/316 0.018 SHEET

**

Location

Loc Qty

Loc Code

MAT020

75.6567

m130650

75.6567

130650

*MS20427M3-3

Purchased

No

110

Each

889.0000

88

176

**

15/05/21 DAS 36 9-89

MS20427M3-3

Rivet

Location

Loc Qty

Loc Code

GA

17

m129864

7

m130922

10

ST311

872

131677

373

m130922 -

499

305

223

*MS21060-3K

Purchased

No

150

Each

191.0000

22

44

**

15/05/21 DAS 36 9-89

MS21060-3K

Nut Plate

Location

Loc Qty

Loc Code

GA

81

m130953

81 44

ST302

110

m129864

1

m131153

109

49

1

82

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Past Expiry Date ☐	Manufacturing Process ☐																																																																											
Misidentified ☐	Past Due ☐																																																																											

Picklist Print

Page 2

Tuesday, April 21, 2015 1:45:58 PM

Work Order ID: 131685

131685

Parent Item: D3649-041

D3649-041

Parent Item Name: Tunnel Bottom Panel Assy

Start Date: 4/20/15

Required Date: 4/20/15

Start Qty: 2.00

Required Qty: 2.00

MS21062-3K

Purchased

No

150

Each

106.0000

22

44

15/05/21

DAS
36
9-89

MS21062-3K

Nut Plate

Location

Loc Qty

Loc Code

ST301

106

M131153

106

73

14132325
60K

Tuesday, April 21, 2015 1:45:58 PM

Shop Packet Print

Page 2

DQA: _____ Date: _____



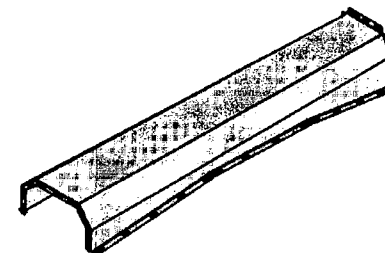
WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																	
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Date :	Step #:	QTY Effective :				MRB (QSI042) Approval																																																																	
Description Work Order Deviation		Disposition				Completed By																																																																	
						Lead hand / Supervisor Approval Verification																																																																	
						QC / QA Coordinator Approval																																																																	
Root Cause <table style="width: 100%; border: none;"> <tr> <td style="border: none;">Environment ☐</td> <td style="border: none;">No Re-verification ☐</td> <td style="border: none;">Pressure/Forced ☐</td> </tr> <tr> <td style="border: none;">Design ☐</td> <td style="border: none;">Operator ☐</td> <td style="border: none;">Bending ☐</td> </tr> <tr> <td style="border: none;">Doc/Data ☐</td> <td style="border: none;">Offset/Setup ☐</td> <td style="border: none;">Centre Not Concentric ☐</td> </tr> <tr> <td style="border: none;">Equip/Tooling ☐</td> <td style="border: none;">Supplier ☐</td> <td style="border: none;">Cracks ☐</td> </tr> <tr> <td style="border: none;">Handling/Pre ☐</td> <td style="border: none;">Training ☐</td> <td style="border: none;">Crimp/Kink/Ripple/Wave ☐</td> </tr> <tr> <td style="border: none;">Material ☐</td> <td style="border: none;">Use for Testing ☐</td> <td style="border: none;">Cuffs ☐</td> </tr> <tr> <td style="border: none;">Internal Transport ☐</td> <td style="border: none;">Poor Information ☐</td> <td style="border: none;">Crushing ☐</td> </tr> <tr> <td style="border: none;">Tribal Knowledge ☐</td> <td style="border: none;">Rushing ☐</td> <td style="border: none;">Heat Treat ☐</td> </tr> <tr> <td style="border: none;">LOA ☐</td> <td style="border: none;">Product Improvement ☐</td> <td style="border: none;">Wave/Twist in Tube ☐</td> </tr> <tr> <td style="border: none;">Substation ☐</td> <td style="border: none;">Process Improvement ☐</td> <td style="border: none;">Marks/Chatter ☐</td> </tr> <tr> <td style="border: none;">Past Expiry Date ☐</td> <td style="border: none;">Manufacturing Process ☐</td> <td></td> </tr> <tr> <td style="border: none;">Misidentified ☐</td> <td style="border: none;">Past Due ☐</td> <td></td> </tr> </table>		Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Design ☐	Operator ☐	Bending ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Past Expiry Date ☐	Manufacturing Process ☐		Misidentified ☐	Past Due ☐		FAULT CATEGORY <table style="width: 100%; border: none;"> <tr> <td style="border: none;">Temperature/Cure ☐</td> <td style="border: none;">Power Loss/Surge ☐</td> <td style="border: none;">Positioned Wrong ☐</td> </tr> <tr> <td style="border: none;">Set-up ☐</td> <td style="border: none;">Folio/Program ☐</td> <td style="border: none;">Outside Dimensions ☐</td> </tr> <tr> <td style="border: none;">BOM/Route ☐</td> <td style="border: none;">Grain ☐</td> <td style="border: none;">Over/Under tolerance ☐</td> </tr> <tr> <td style="border: none;">Broken/Damage/Defect ☐</td> <td style="border: none;">Weld ☐</td> <td style="border: none;">Part Incorrect ☐</td> </tr> <tr> <td style="border: none;">Inspection Incomplete/Unqualified ☐</td> <td style="border: none;">Wrong Stock Pulled ☐</td> <td style="border: none;">Part Lost/Missing ☐</td> </tr> <tr> <td style="border: none;">Contamination ☐</td> <td style="border: none;">Out of Sequence ☐</td> <td style="border: none;">Part Moved ☐</td> </tr> <tr> <td style="border: none;">Countersink ☐</td> <td style="border: none;">Off-set ☐</td> <td style="border: none;">Drawing ☐</td> </tr> <tr> <td style="border: none;">Cut Too Short ☐</td> <td style="border: none;">Mislabeled ☐</td> <td style="border: none;">Finish ☐</td> </tr> <tr> <td style="border: none;">Instructions Incomplete/Unclear ☐</td> <td style="border: none;">Fit/Function ☐</td> <td style="border: none;">Misread ☐</td> </tr> <tr> <td style="border: none;">Drill Holes ☐</td> <td style="border: none;">Misaligned/off center ☐</td> <td style="border: none;">Turning Sequence ☐</td> </tr> </table>				Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Countersink ☐	Off-set ☐	Drawing ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
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OTHER : ☐																																																																							

C215/04/22
W10.13685

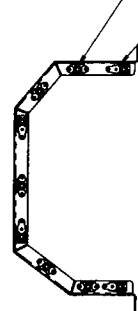


MS21060-3K NUTPLATE (1)
MS20427M3-3 RIVET (2)
(5 PLACES)

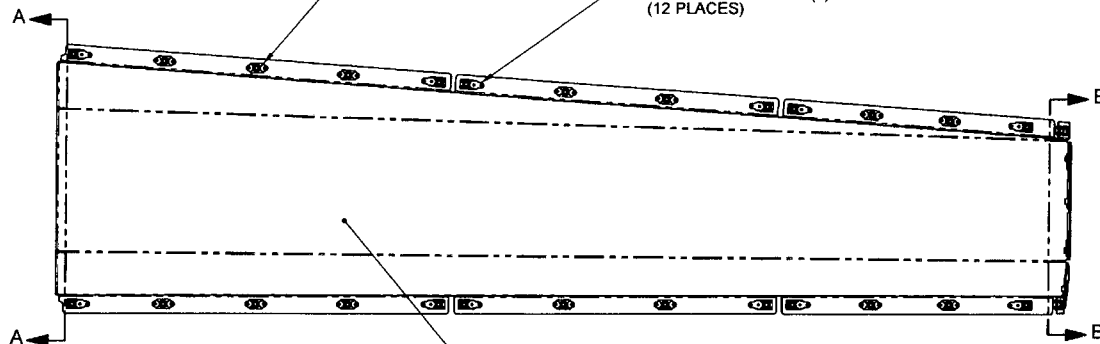
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MS20427M3-3 RIVET (2)
(4 PLACES)

MS21060-3K NUTPLATE (1)
MS20427M3-3 RIVET (2)
(14 PLACES)

MS21062-3K NUTPLATE (1)
MS20427M3-3 RIVET (2)
(12 PLACES)

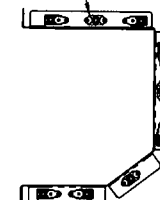


SECTION A-A



D3649-1 TUNNEL BOTTOM PANEL

MS21060-3K NUTPLATE (1)
MS20427M3-3 RIVET (2)
(3 PLACES)



MS21062-3K NUTPLATE (1)
MS20427M3-3 RIVET (2)
(6 PLACES)

SECTION B-B

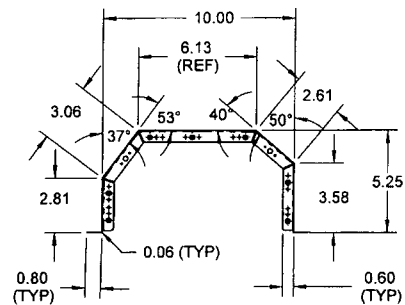
D3649-041 BOTTOM PANEL ASSEMBLY

PART LIST

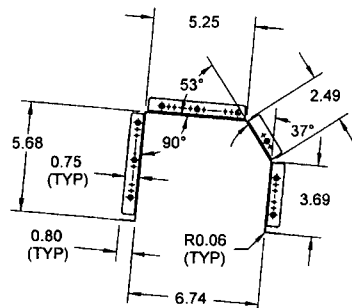
QTY -041	PART NUMBER	DESCRIPTION
X	D3649-041	TUNNEL BOTTOM PANEL ASSY.
1	D3649-1	TUNNEL BOTTOM PANEL
88	MS20427M3-3	RIVET
22	MS21060-3K	NUTPLATE
22	MS21062-3K	NUTPLATE

RELEASED
28-03-28/10

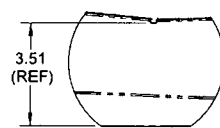
B	PAGE 3: MS20427M3 WAS MS20427M-3	RF	08.01.07
A	NEW ISSUE	RF	07.11.07
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	1E	DRAWING NO.	REV. B
MFG. APPR.	1E	D3649	SHEET 1 OF 3
APPROVED	1E	TITLE	SCALE
DE APPR.	1E	BOTTOM PANEL ASSEMBLY	1:5
DATE	08.01.07	COPYRIGHT © 2007 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



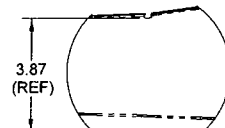
SECTION C-C



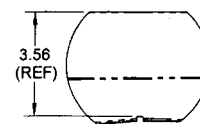
SECTION D-D



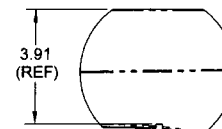
DETAIL E



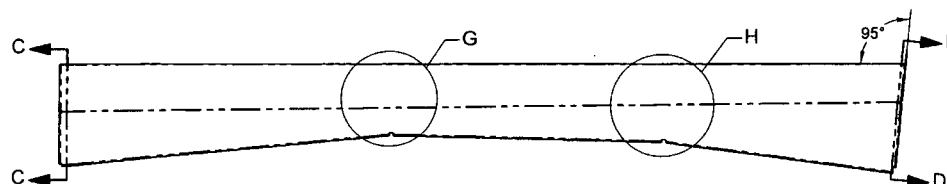
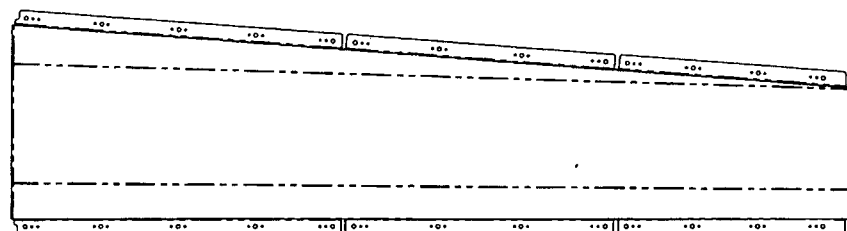
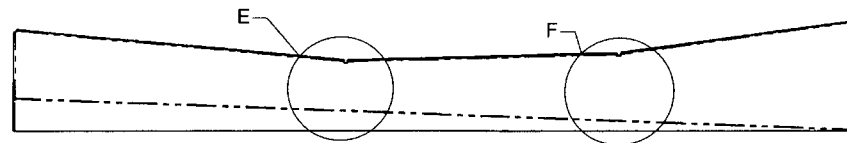
DETAIL F



DETAIL G



DETAIL H



D3649-1 TUNNEL BOTTOM PANEL
(MAKE FROM D3649-1F)

RELEASED
08.03.27/11

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	RF	DRAWING NO. D3649	REV. B
MFG. APPR.			SHEET 2 OF 3
APPROVED		TITLE	SCALE
DE APPR.		BOTTOM PANEL ASSEMBLY	1:6
DATE	08.01.07	COPYRIGHT © 2007 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

DART AEROSPACE LTD	Work Order:	131685
Description: Tunnel Bottom Panel	Part Number:	D3649-1
Inspection Dwg: D3649 Rev: B		Page 1 of 2

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Ø0.098	+0.004/-0.001	0.100"	-		✓	Jkmo7
Ø0.196	+0.005/-0.001	0.196"	-		✓	
Ø0.250	+0.005/-0.001	0.250"	-		✓	
0.400	+/-0.010	0.402"	-		✓	
0.385	+/-0.010	0.385"	-		✓	
0.250	+/-0.010	0.250"	-		✓	
44.57	+/-0.030	44.57"	-		T	Jkmo7
11.70	+/-0.030	11.70"	-		✓	Jkmo8
3.370	+/-0.030	3.370"	-		✓	
13.76	+/-0.030	13.76"	-		T	
4.300	+/-0.010	4.303"	-		✓	
10.11	+/-0.030	10.11"	-		✓	
12.90	+/-0.030	12.90"	-		T	
16.61	+/-0.030	16.61"	-		T	
15.80	+/-0.030	15.80"	-		T	
3.950	+/-0.010	3.950"	-		✓	
0.42	+/-0.030	0.42"	-		✓	
0.41	+/-0.030	0.41"	-		✓	
0.85	+/-0.030	0.85"	-		✓	
19.64	+/-0.030	19.64"	-		T	
0.54	+/-0.030	0.54"	-		✓	
1.400	+/-0.010	1.400"	-		✓	
2.63	+/-0.030	2.63"	-		✓	
2.93	+/-0.030	2.93"	-		✓	
1.49	+/-0.030	1.49"	-		✓	
5.98	+/-0.030	5.98"	-		✓	
0.54	+/-0.030	0.54"	-		✓	
2.20	+/-0.030	2.20"	-		✓	
2.75	+/-0.030	2.75"	-		✓	
2.48	+/-0.030	2.48"	-		✓	

DART AEROSPACE LTD		Work Order:	131685
Description: Tunnel Bottom Panel		Part Number:	D3649-1
Inspection Dwg: D3649 Rev: B		Page 2 of 2	

FIRST ARTICLE INSPECTION CHECKLIST

☒ **First Article**

 ☐ **Prototype**

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
1.16	+/-0.030	1.16"	-		✓	
3.38	+/-0.030	3.38"	-		✓	
2.00	+/-0.030	2.00"	-		✓	
0.90	+/-0.030	0.90"	-		✓	
16.64	+/-0.030	16.94"	-		T	
0.48	+/-0.030	0.48"	-		✓	
13.80	+/-0.030	13.80"	-		T	
0.46	+/-0.030	0.46"	-		✓	
11.76	+/-0.030	11.76"	-		✓	
1.23	+/-0.030	1.23"	-		✓	
0.88	+/-0.030	0.88"	-		✓	
18.46	+/-0.030	18.46"	-		T	
5.23	+/-0.030	5.23"	-		✓	
1.932	+/-0.010	1.932"	-		✓	
1.943	+/-0.010	1.943"	-		✓	
5.02	+/-0.030	5.02"	-		✓	
1.820	+/-0.010	1.820"	-		✓	
0.70	+/-0.030	0.70"	-		✓	
2.100	+/-0.010	2.100"	-		✓	
2.33	+/-0.030	2.33"	-		✓	
0.94	+/-0.030	0.94"	-		✓	
3.30	+/-0.030	3.30"	-		✓	
1.900	+/-0.010	1.900"	-		✓	
0.61	+/-0.030	0.61"	-		✓	

Measured by:	Jm	Audited by:	SC SVD	Prototype Approval:	N/A
Date:	15-4-30	Date:	MAY 11 2015	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	08.04.17	New Issue	KJ/DD	